

Rec'd Oct 29
Ans Nov 22

New York, October 27th 1877

656 Broadway

George Engelmann M.D.,
St. Louis

My dear Doctor:

Pardon me

for troubling You again in the matter of determining some
Cacti, which are all exotics, and about as little known to our
cultivators and collectors here, as the equatorial regions of
Africa were to us all before the advent of Stanley. I sent
the aforesaid specimen in a box by this day's mail, and
hope that You will examine them when You are at sufficient
leisure and favor me with a reply. If I knew that You
would be pleased to have them, I could send You three more
quite different species of Cereus - all 3-angled too. Of the
latter species one is C. Ocamponis and the other C. variabilis
(C. trigonus (variabilis) of Pfeiffer).

One of the cuttings in the box, not numbered, is the old known
species C. triangularis of Haworth, and I send it for the pur-
pose of comparison, should it not be convenient for You to do so.
Have seen it in flower, and know it to be correct in name.



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MISSOURI
BOTANICAL
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The species marked respectively on tags, No. 1 and No. 2, are what I should like to get your valuable opinion upon. Mr. P. G. Baker of the Kew Herbarium suggested to me, that you were an excellent authority on exotic as well as native species. I have gone through with all the literature on exotic Cactaceae in the Astor Library, and did not find desirable information. The Library is very deficient in that.

Specimens marked No. 1, contain one small sound and several dead cuttings of a species, which I received in a very bad condition from the Island of Guadalupe, W. P., quite recently. It was owing to the fact that they were planted in a water-tight barrel, which the kind-hearted Captain of a coasting vessel had watered very freely, to do me a favor as he thought. Consequence - nearly two thirds rotted, and much of the remainder is in a doubtful condition. But next Spring, I shall have more of it, and I hope in better condition when it arrives. I will give a description of largest segments received. The segments are nearly all triangular, the exception being quadrangular, and from 2-3 feet in length. From 2-3 inches in thickness, quite deeply channeled or grooved, and of a deep green color. It is of a more robust habit than C. triangularis of Haworth. Each areolus has from 7-8 long and ferocious-looking spines, the longest 1 1/2 inches in length, of which one large is central and the two longest always lowermost in position, looking downwards.



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I failed to observe any air-roots, and so far I know nothing about its habit, flower or fruit. It was gathered for me in the interior of Guadalupe. Are You in the possession of any literature, that throws any light on the subject?

The second specimen, marked No. 2, is perfectly sound. I have several plants of the same, which I received from Mr. J. Lachamne of Cuba and he calls it Cereus trigonus minor, which I think is a misnomer. Neither Loudon's Encyclopaedia nor Bass's Hand-book der Blumen-geographie, recognize that name. Can it be perhaps Cereus trigonus of Haworth or C. triquetus, of same? The cutting sent is a fair sample of its growth. Sometimes (the segments) they grow to be 15 inches long, but not much thicker. ^{than sample} Spines nearly black, quite short. Angles obtuse, the channels well filled out, and supplied with a few aerial roots. Does not grow very fast and high. Mr. Lachamne says that the flower of it, is much smaller than C. triangularis, and with the exception of brownish sepals (as in C. grandiflorus) like the former variety, in nearly every other particular.

Being very much of an enthusiast, and studying the genus Cereus, I hope that You will not refuse my request and if at any time, I can accomodate You with cuttings, You will please to let me know it, and I will reciprocate the favor.

Very truly, Yours

R. E. Kunzé



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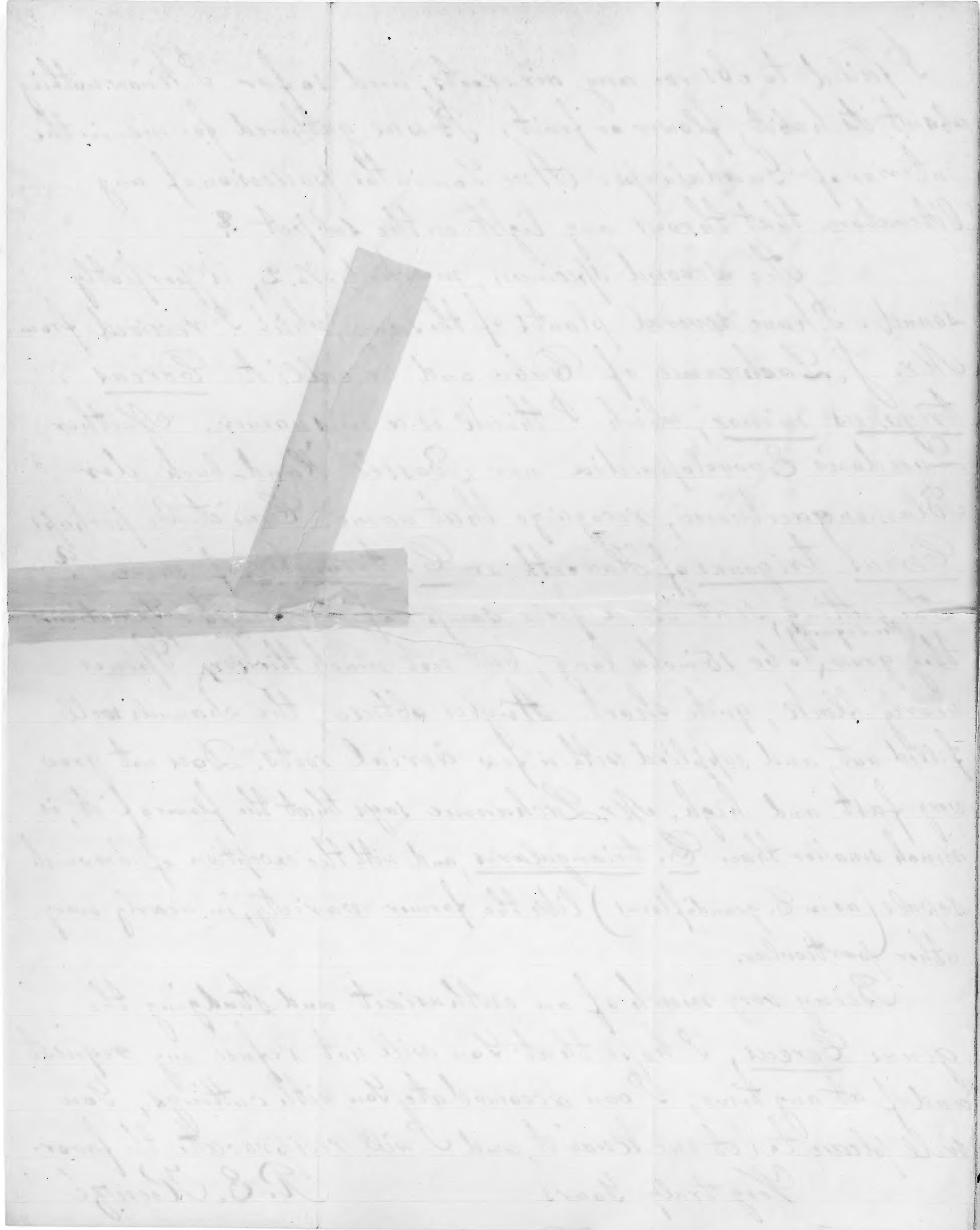
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Rec Nov 21st
Ans - 22

New York, Nov. 19th 1877

George Engelmann M.D.
St. Louis

Dear Sir:

I have sent to you this day another cutting of a Cereus, of the type triangularis, the name of which none of our collectors here or abroad seem to know anything about. In fact, in the collections of Paris and London, the plant is not represented, so I am informed directly. I received cuttings of it from Barbadoes, W. I., repeatedly during the past 2 1/2 years. They grow a little with us the first year and invariably commence to rot the first winter. Cuttings which I had divided repeatedly with Messrs. P. Buchanan and Peter B. Mead, propagated under different conditions, behaved just



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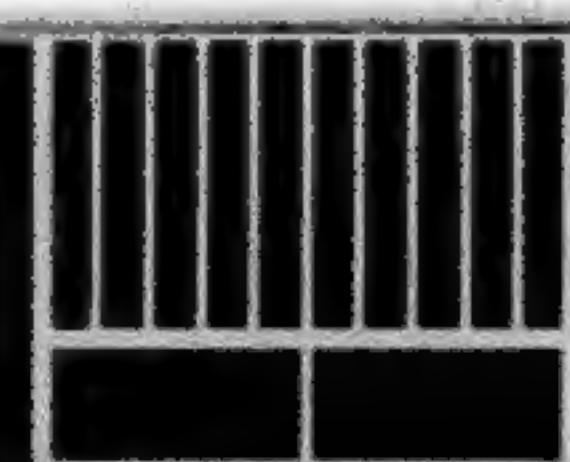


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the same way. The experience thus far made, shows that the plant requires a much greater stove-heat than C. triangularis and far less moisture or water than the latter species. Repeatedly I have stopped the rot, by removing the cuttings and plants to almost up to the stove itself.

The last out of 3 cuttings I made 18 months ago, has just now commenced to rot for the 2nd time this fall, which is in consequence of leaving the plant out of doors too late this season (Oct. 18th), and it sickened soon after bringing it in the house, but stopped as soon as it got enough of heat.

We had copious rains too before bringing it indoors. Unfortunately I watered the plant again once or twice in 20 days and now although standing within 2 feet of the stove, it shows yellow spots on the epidermis again, a sure sign of rot. I have therefore cut off half of the upper sound part, containing also a young shoot of the year 1876 and a very little new growth of the present



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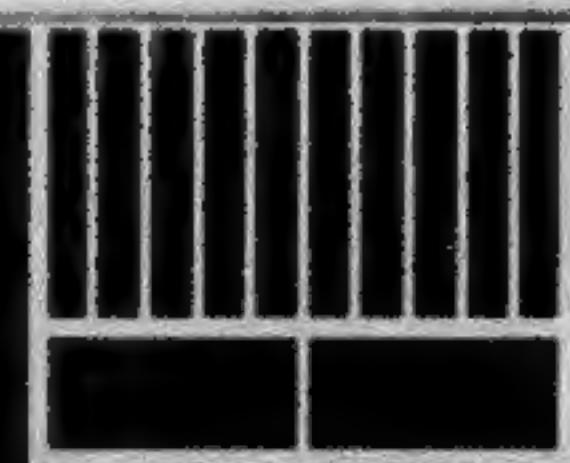


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year, to which latter I have tied a pink
twine to show the relative growth between
this climate and the equatorial regions.

The middle of the plant (18 inches high)
is about one inch thicker in diameter than
the cutting I sent you. This seems to be
its maximum growth in the West Indies.
Branches average from 1-3 feet in length.
Average size of branches or segments
about $1\frac{1}{2}$ inches in diameter; radican,
scandent, triangular and but seldom
quadrangular in form. It flowers at night -
one evening only slightly fragrant like a
t. *Peonia*, in July and the fruit ripens only
in W. I. (a scarlet crimson color, the size
of a goose-egg, like that of *C. triangularis*.)

This summer I received a very
large rooted plant from Barbados, nearly 4
feet high, which is doing very well. Another
smaller plant, 2 feet high, which I got from
Bermuda last May, made a bud with
me shortly after planting it and I had the extra
good luck to flower it, July 22nd 1877.



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This plant is doing better with me even than the larger one. It must be because it was cultivated in Bermuda, and therefore here more easily acclimated.

I had the plant photographed, with the bud expanding just before it grew dark. Also kept the flower on ice all night and had it photographed as well. Mr. Isaac Buchanan, Mr. Thomas Hagg, Mr. P. B. Mead and hosts of other Botanists told me they had never seen anything like it. If you desire to have some of the photographs, I will send them to you Doctor.

Flower about 1 foot in diameter and nearly as long. Disposition of floral envelope similar to that of C. triangularis. Flower-tube covered with thick scales also.

Petals, straight, pointed, white on upper half and rose-madder pink from middle to base. Petals 2 inches wide; Sepals, recurved a little, not ~~straight~~ straight as in C. triangularis and in 6 distinct rows. Painted and longitudinally divided. Color: Crimson pink toward the tips and down along the edges of sides the same. Inner and outer side, a rich Kings-yellow. Scales of tube green, tipped pink. Style very thick, $1\frac{1}{4}$ inch or more. Stamens disposed in a cup-shaped, yellow, like stigma and anthers. Stamens numbered 964! Stigmata No. 26! Can give you full particulars from my notes if you wish to have them. Excuse me for troubling you so much. When at leisure, please answer. Truly yours, R. E. Wmz



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Nov 20th '01

R. S.

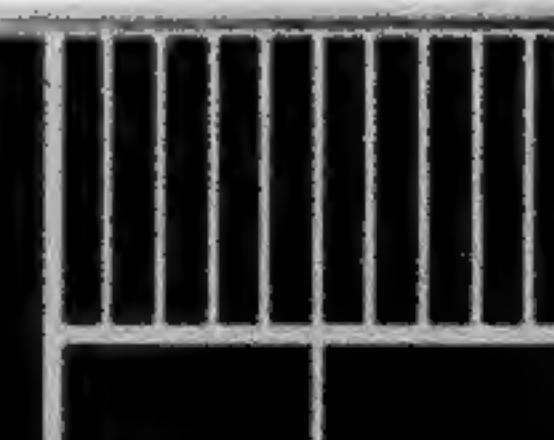
Mr. J. G. Baker of the Kew Herbarium seems to think it comes about midway between C. acutangulus H. Berol., and C. variabilis Pfeiffer.

The house of Mad. Steiner-Persdorff of Batignolles, Paris (formerly Charles Persdorff), thinks it is C. undeanus Salm.

Both Mr. J. G. Baker and Dr. George Thurber say, that you are the only living competent authority to determine exotics as well as native Pacific.

I will further say that my largest plant has every segment of a 3-angular form, whereas the smaller Cervus with but four branches, has 2 of them, quadrangular in shape. In every other particular they are the same to a dot.

R.



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GEORGE ENGELMANN PAPERS



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Rec Dec 7th

New York, Dec. 4th 1877

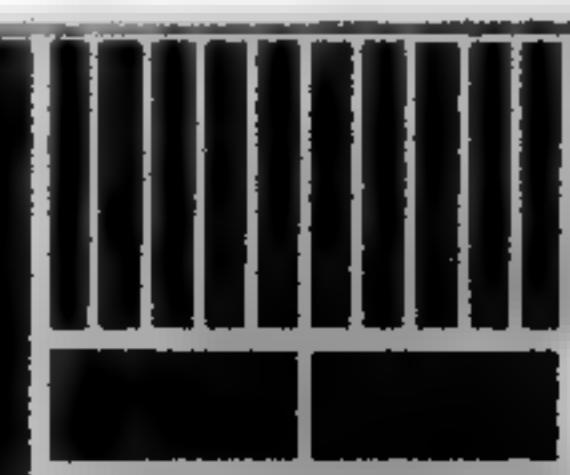
George Engelmann, M.D.

St. Louis, Mo.

Dear Sir:

You have

given me such a lucid idea of how to take correct measurement of Cactus flowers, that I shall apply it to practical use at the very first opportunity that offers. I have send you three photographs - all representing the same species I received from Barbadoes and Bermuda, Cereus tri- - ? I shall call it for convenience sake. See explanatory notes on the back of each photograph. The disproportionate thickness of the two plants is due to the distance of the camera from the objects. The number of spines are the same on the areolae of each plant - from 4-5 each. The only difference exists in that the small Bermuda plant has two quadrangular



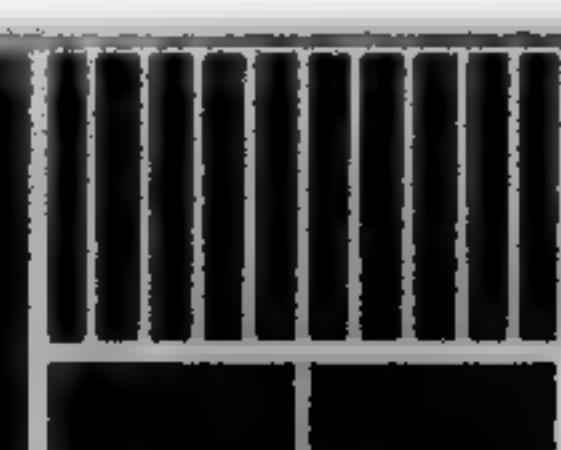
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segments or branches and the Barbados specimen is strictly 3-angular throughout. This difference may be due to variation of form. I had the large plant photographed especially for your benefit, so that you might be able to better compare notes. You will observe the long roots on the larger plant, which are 3 feet in length. The smaller plant does not have many roots yet - only from the old young wood, which it is now making, having stood 3 months dormant after in-fluorescence! A cutting I gave to a friend last April, not over 12 inches long has made the largest growth of wood and roots (aerial) I have ever met with. At my request Mr. W. H. Elements the gardener of R. H. Rathbun Esq. of South Amboy, N. J., who has the finest collection of *Euphorbia* in this vicinity, struck it in a very hot place and kept it under glass all Summer. It threw up 2 branches, each about 3 feet long and having roots from 2-3 feet long! The young wood grew to about two thirds the thickness



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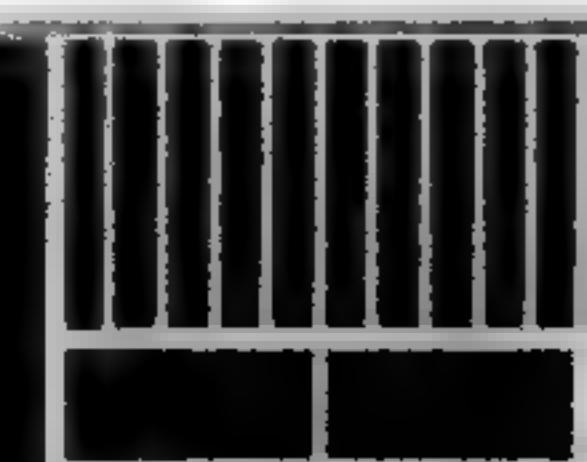
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ies of the old wood (grown in the West Indies),
which is more than any I have grown
myself so far. Understand however that
my plants have been kept out of doors all the
summer and until late in autumn - much
too cool for this species, and which as you
may have observed on the cutting you had
of me, hardly made any growth with
me in 2 years! I mention this so
that you may account in a measure for
the difference of size. The true habitat
of this species I have not yet ascertained.
Have already written several letters
to my correspondents in various parts of
the West Indies, to find it out where all
the plants they send me, are natives of.
Also requests for flowers, fruits and seeds
when obtainable. The difficulty with the most
of people in the West Indies is, that the climate
makes them indifferent, careless and lazy in
habit. Don't want to take too much trouble
about anything. Europeans, when they are there
a little while, are said to do not much better.



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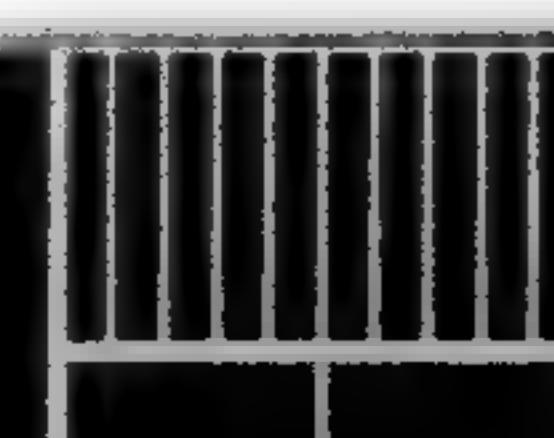


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I must defer the minute description of color, size and form of flower of this *Bermuda-Cereus*, until a few days longer. It is so lengthy, that I cannot now copy my full notes on the subject.

Prof. Asa Gray, whom I sent cuttings of the *Cereus tri-*., which was labeled in the lot you received of me, as the Cuban species - says that he received the same plant from Kew Gardens some years ago, under the name of *Cereus triangularis*, variety *glaucus*, but that he is himself of the opinion, it is *C. trigonus*. I mention it incidentally, because there is nothing glaucus about it. I will mail to you 2 more very small plants, if not too cold, I received from Paris a year ago, under the names of *Cereus campanis* Palm, a really glaucus 3-angular species, and *C. variabilis* Pfeiffer, to see if the latter corresponds with your plant in St. Louis. The last mentioned was also catalogued as *Cereus trigonus (variabilis) Pfeiffer*. I have a fine flower of *Cereus serpentinus* Lagasca, preserved in glycerine. It is perfect, yet somewhat shrivelled. Would you like to have it for examination? Also have photographs of same.

Very truly yours, R. E. Kunze



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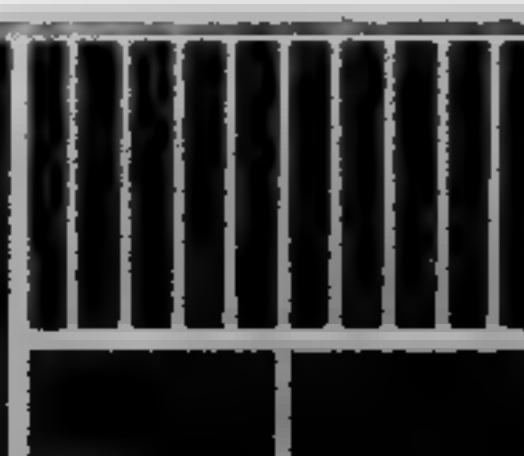


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GEORGE ENGELMANN, President

P.S. I mailed a package of dead and some living cuttings of Cerei to your address yesterday, accompanied by a postal card with explanation. They were marked lots No. 1. 2. & 3 respectively. The No. 1, contained pieces of the Cuban variety of Cereus grandiflorus D. C., and comprised very young and some very old wood of this species. The young wood grew in Havana under cultivation, and the old thick cuttings, showing cicatrices of former flowers, came directly from the mountains, growing wild in the interior. This is the variety of C. grandif., the ^{sepals} ~~petals~~ of which on their



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outer side are more of a maroon color, whereas the
same in the ^{sepals} of C. grandiflorus, which was the
first introduced as Cactus grandif. L., is more like
the sepals of C. nyctioides Link, in shade of color.
The very young flower-buds of the earliest variety of
C. grandif. are covered with purest white silken
hair, the same as in C. nyctioides! Did You know
that the variety of some unknown C. grandiflorus I got
from Guadalupe, and of which I send You 2 cuttings on the 5th
inst. has young flower-buds, like the one indigenous to Cuba.

Lot No. 2, contains cuttings of young and old wood of Cereus
rastratus Lemoire, cultivated here. It is true to name, said it flower.
Lot No. 3, are dead pieces of that new 3-angular Cereus
from Guadalupe, which I thought You might be pleased to possess.

Yrs.



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New York Dec. 5th 1877

606 Third Avenue

Dr. Geo. Engelmann

Dear Sir:

I have just
mailed to your address a box of Cacti,
containing a small plant of each of:
Cereus Ocamponis Palm, and Cerous
variabilis Pfeiffer. I have also a large
plant of each - the former 2 1/2 ft. and
the latter 3 feet high, all of which came
from the former house of Charles Pfeiffer,
now G. Steiner Pfeiffer of Paris.
I am told that their collection of Cacti
is unexceptional in point of correct
names, although I have received a few
plants of them, that do not agree with
Boss's Handbuch der Blumen- und Gartenkunst
or Pfeiffer's Enumeratio Diagnostica
Cactacearum, either.

They have not flowered with me yet.
I also sent you 2 little cuttings of a
variety of Cereus grandiflorus, native of
Guadeloupe W. I.; I have many large fine
cuttings of it, many with large aerial roots.
It is 4-6 angular, but by far the most
is pentangular. In June last I got some
from Guadeloupe with small buds thereon. They
were covered by light brown wool like the Cuban
C. grandiflorus. Another C. grandif. with whiter
fibres, but with white buds like C. microcarpus.



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The upper part of cuttings is marked with
pink tissue. There seems to know
it and it is no collector to be found.
Have a description of ~~the~~ ^{the} leaves and
they were sent in for ~~Geocallis~~ ^{RES} ~~Geocallis~~ ^{Geocallis} ~~grandiflora~~
Have send out orders for the flower
and fruit. The young shoots are delicately
pinkish near the tips, like those
~~C. nyctaginea~~. By and by
send you cutting of the
2 species of C. grandiflora
You may compare the three.

Very truly yours
Hunziker

MESSAGE ON THE



Dr. George Engelmann
3003 Locust Street
St. Louis
Mo.



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New York Dec. 10. 1877

Dear Doctor:

Having a quantity of dying wood of several species of *Cereus* on hand, I send it to you this day, including also some live cuttings (the weather is mild again) of 2 kinds, and if the latter should freeze, I can always duplicate them when it is safe to send them in the Spring. But I thought that it would be of interest to you in noting difference in size and appearance of wood, and therefore added some living cuttings of small plants.

No. 1, is *Cereus grandiflorus* D. C., which was collected for me in Cuba, up in the mountains.

No. 2, is *Cereus rostratus* Lemaire, I have several plants, obtained from American, German and French collections. I had the flower photographed, and it is true to name. Mr. Hogg, now about going to Mexico again, tells me that he found it in indigenous trees, Orizaba, Mex. last year.

No. 3. is *Cereus* ... A?, from Guadalupe, M. I., of which you had a piece before. You will receive another note from me with notes on Barbadensis *Cereus* within 24 hours for date.

Yours truly, R. E. Kunze

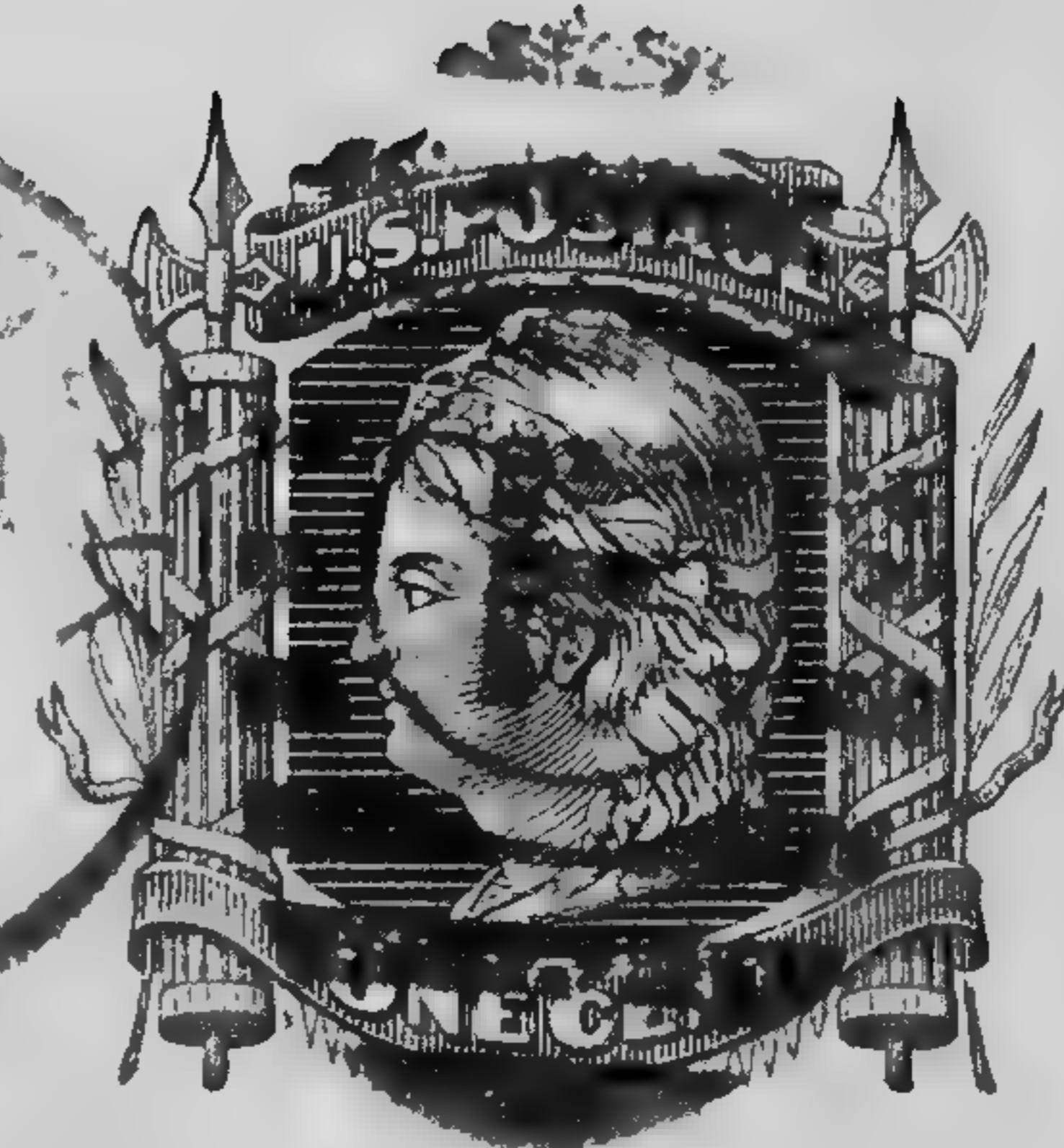
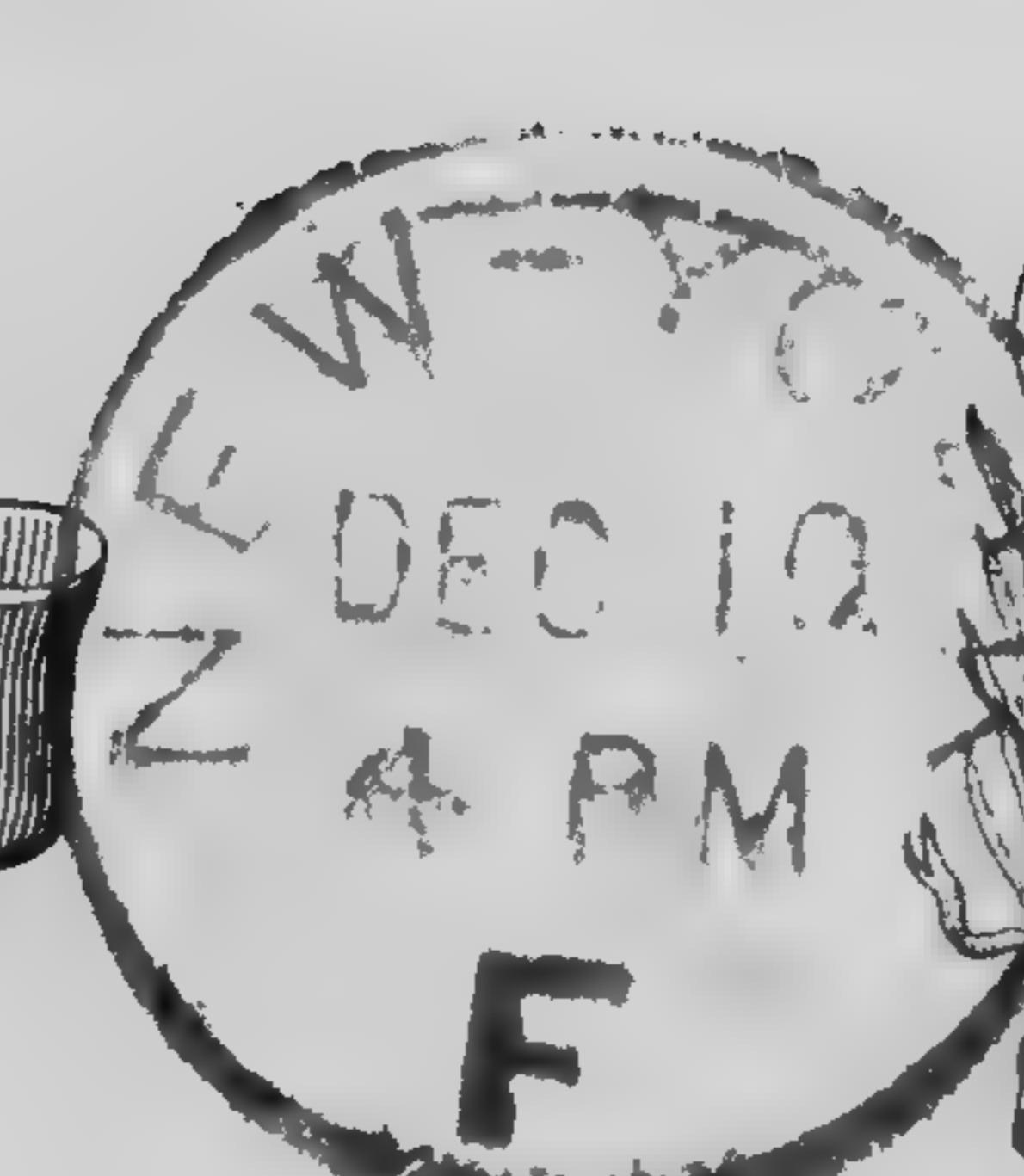


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WRITE THE ADDRESS ON THIS SIDE - THE MESSAGE ON THE OTHER

George Engelmann M.D.
No. 3003 Locust St.
St. Louis
Mo.



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Rec Dec 13th
Ans Jan 3rd

New York, Dec. 11th 1877

George Engelmann, M.D.

St. Louis, Mo.

Dear Doctor:

Herewith I present to You the measurements and description of the flower of that *Cereus*, species to me unknown which I obtained from Bermuda and Barbadoes, where it is cultivated, and of which You have already received 3 photographs, namely, one representing a small plant with flower-bud just expanding, which arrived from Bermuda, May 25th 1877; another, giving a front view of the expanded flower; and the third photograph representing my largest plant, sent to me from Barbadoes, W. I., in August, 1877. Both plants are the same species, having the areoles located similarly. Length and color of spines, which number from 4-5, identical with one another; they are crowded or matted at the base into one tubercle, the small flowering plant is about 2 feet high, and has both 3- and 4-angular stems, which are better filled out in the sinuses than the largest specimen from Barbadoes, supported on a trellis and the support of which stands 4 feet high. The largest plant has only 3-angular branches, and the flower thereof corresponds in every particular with the plant I flowered July 22nd 1877, as already stated in a former letter. Both plants are night-flowering, from July to August.



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Flower opens from sunset to sunrise, very slightly fragrant, nearly like the odor of the old fashioned, single, Garden Paeonia officinalis, which can hardly be called exquisite in fragrance, but is quite diffusible.

The flower-bud was set, June 20th, globular like a Camellia bud, green, and when 2 weeks grown, about $\frac{3}{4}$ inch in diameter. Then it enlarged more rapidly, and the last week grew very amazingly fast, elongating and resembling the buds of C. triangularis, Haworth. At about noon of the 22nd of July, the bud looked charmingly. The tips and edges of the sepals, all closely mottled in a compact, smooth, ovate form toward the summit, were of a soft madder-pink, deepening in intensity of color toward the apex, and brilliant under the rays of the sun. At 11 o'clock, A.M., the bud was $8\frac{1}{2}$ inches long; diameter at thickest part near apex, 2 inches. diameter at base of tube (ovary) 1 inch; constricted toward lower third of tube. The naked part of tube, without the scales, across ovary, $\frac{3}{4}$ inch in diameter. At 12 M., the color of sepals in the centre was a rich golden-yellow shaded green, more brilliant than in C. triangularis, former predominating in yellow. At 1 P.M., the shades of pink of the bud, were those as seen in the Conch-shell, from a lovely delicate tint to a rich carmine near the tips of sepals, encircling the just protruding white, pointed petals. The very roseate tips of petals sepals, made half a spiral twist around the points of the white petals at 3 P.M., similarly to that of the flower in C. grandiflorus. At 4.30 P.M., the diameter of bud near apex, was 3 inches. Opened its floral envelope at 6 P.M. and by

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7 o'clock the sepals were quite recurved, as seen in the photograph that I had taken about and just before sunset, previous to expansion of petals. Diameter of flower across ^{sepals} at 6.30, 9 inches, which was really the greatest expansion of the flower, because at 7 P.M. the sepals were still more reflexed or recurved. Sepals of calyx disposed off 5-6 rows, of which upper five were recurved and the lowermost, short, straight and in opposite direction of the former, standing out more like the petals.

Diameter of Corolla (across petals) at 7 P.M., 4 inches. Petals and intermediate ones $\frac{3}{2}$, disposed of in 2 rows. At 11 P.M., the diameter of perianth was $9\frac{1}{2}$ inches and of corolla, $4\frac{1}{2}$ - $4\frac{3}{4}$ inches. Length of flower and tube, 9 inches; of tube alone 4 inches.

I am sorry Doctor, that I cannot give you the following measurements by lines; it was merely intended to use for my future description in connection with Medical Botany, for which purpose it was precise enough.

Pistil, $7\frac{3}{4}$ inches long, yellow. Style near ovary, $\frac{3}{16}$ inches thick; at the union with stigma $\frac{5}{16}$ inch in diameter. Stigma compound, with 26 pointed bodies, yellow; each point $\frac{3}{4}$ inches long, irregularly spreading, a number crowding up closely together in the centre and a little raised in front of the others, like a crown or rosette. Each point $\frac{3}{4}$ " long, serrated edges, and from $\frac{1}{16}$ - $\frac{1}{8}$ " in thickness. Several of the points of stigma were united at their base into one. The central points of the stigma, $\frac{1}{8}$ " thick, of which 3 or 4 were double or forked and erect, forming a corona. The stamens yellow, $9\frac{1}{4}$ in number. Others, $3\frac{1}{8}$ " long, yellow. Filaments, 3", $2\frac{1}{2}$ ", and 2" in length. The congregated stamens forming a cup within the corolla, upon the most dependent part ^{of which} the pistil rested.



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Stigma $\frac{1}{2}$ " longer than stamens. Petals, 13 in number, pointed or spatulate, 4 " long, $1\frac{1}{2}$ " wide at the middle and very narrow at base. In color white, from tip to middle, gradually changing to a soft madder pink and fading near the base, which is $\frac{1}{2}$ " in breadth. Intermediate petals or sepals, 6 in number; longitudinally divided; $4\frac{1}{4}$ " long, and fr. $1\frac{1}{2}$ - $3\frac{1}{4}$ " ^{wide} long. Color at tip a blush-pink, changing near middle to amber-yellow and at base again to a light blush-pink. Edges not tinted pink like true sepals. The sepals number 4; pointed, longitudinally divided, $4\frac{1}{2}$ " longest $\frac{3}{4}$ " ³⁻ the shortest of flower proper. Upper third of sepals a rich carmine pink, fading and changing toward the middle into a Kings-yellow so called, which is continued down to base. Edges of sepals, carmine pink from tip to base. The reflecting rays of the setting sun on this floral beauty mirrored all the changes of the rainbow-colors which as Mr. P. Buchanan and many friends who witnessed the expansion of this flower, was lovely, grand and unsurpassed in richness yet mellow in effect. Words cannot describe the impression made on one mind. Scales of the flower-tube, imbricated; lower third greenish-yellow with edges margined pink, tipped deep carmine. The marginings of most of these scales which completely covered the flower-tube, was more of a purple lake or purplish-carmine. The base of lower scales, more green until it became quite so at the ovary. The scales of flower-tube 18 in number, from $1\frac{1}{4}$ - $1\frac{1}{2}$ " long; and from $\frac{1}{8}$ - $\frac{1}{2}$ " in breadth. I should also say that the fine yellow at the middle of sepals changed into Orange before blending with the carmine tips. The corolla at throat of flower-tube, was infundibuliform, spreading out in caul-like shape at summit of petals. Distance ^{apart} of petals from stamens, one inch. Ovary contained several hundred ovules. Doctor, I have now exhausted my notes. Does it furnish you any clue as to identity? Very truly, Yours, Richard E. Munze



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MISSOURI
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